Appendix L
Metal Parts Furnace Shakedown and Testing for the HD Trial Burn

Appendix L. Metal Parts Furnace Shakedown and Testing for the HD Trial Burn

Section I. Introduction.

1. Background.

a. This Test Plan details a series of MPF System tests that demonstrate that chemical agent HD is thermally treated effectively. The Shakedown tests will establish the MPF HD feed rate to be used during the MPF HD Trial Burn based upon the quantity of chemical agent HD that can be processed in 120 minutes. During the MPF HD Trial Burn, the HD feed rate will not exceed the liquid feed rate established during Miscellaneous Waste Trial Burn. The Shakedown will also determine the feed rate the MPF is capable of processing within temperature limitations. The tests will be performed with empty pre-punched TCs filled with chemical agent HD with amounts increased incrementally. The HD Trial Burn will demonstrate the MPF operational parameters and generate data to provide sufficient information for the regulating authority to set the RCRA Part B Permit conditions for the MPF.

2. Objectives.

a. Provide data to be used to establish the maximum chemical agent HD load in TCs that can be processed through the MPF without exceeding regulatory limits or exceeding the temperature range of the MPF.

b. Demonstrate multiple TCs with chemical agent HD can be processed through the MPF.

c. Characterize the emissions from the MPF/Pollution Abatement System (PAS) when thermally treating chemical agent HD using RCRA emission requirements (Appendix D).

d. Control chemical agent HD emissions from the MPF to less than 0.03 milligrams per cubic meter (mg/m^3).

3. Schedule.

a. The Level III Schedule for the HD Shakedown is provided in Figure B-1 (page B-1, Appendix B).

b. The HD Shakedown is estimated to last two weeks.

c. The HD Shakedown will consist of Furnace Capacity Tests and Staging TCs Tests. Only the Staging TCs Test will involve sampling.

4. References. References are provided in Appendix P.

Section II. Safety.

Safety Requirements will be identical to those outlined in Section II of the Trial Burn, page 5.

Section III. Test Procedures.

1. Preparation.

a. All testing will be IAW applicable SOPs, Quality Assurance Project Plan (QAPP, Appendix J), Standard Sampling Operational Procedure (SSOP, Appendix K), and this Plan (References, Appendix P).

b. Instruments will measure temperature, pressure, flow, and gas readings IAW Table C-1 (Appendix C).

c. Testing will occur in the MPF, MDF, and BIF.

d. Laboratory analysis of the chemical agent HD in each TC used during Shakedown will be performed to determine chemical agent HD purity and the HRA metals and organic compounds purity and quantity. Test results will be reported by the Quality Control (QC) Representative to the Project Manager (PM) and Data Collection Representative.

e. Test Items and Systems Components.

(1) Up to seven empty prepunched TCs will be available prior to testing.

(2) Chemical agent HD will be available for testing.

f. Certifications.

(1) The CEMS will be tested and approved for operation IAW regulatory requirements.

(2) The Ventilation System will be balanced and verified prior to Shakedown.

(3) All flow-measuring devices will be calibrated and verified prior to Shakedown. Procedures and details of the calibration are provided in Site Plan 05-01, *Metal Parts Furnace Continuous Monitoring System Performance Evaluation* (References, Appendix P).

(4) The MPF scale will be calibrated and verified prior to the start of Shakedown. Calibration documentation will be provided to the PM.

(5) The portable digital scale in the MDF/BIF will be calibrated and verified prior to Shakedown. Calibration documentation will be provided to the PM.

(6) Verify that all Limiting Conditions of Operation are satisfied.

2. Procedures.

a. Furnace Capacity Test.

(1) This test will provide temperature profiles for processing TCs with chemical agent HD heels.

(2) The chemical agent HD Runs for the Furnace Capacity Test will use TCs starting at 58 lbs HD and proceed in 17-lb increments per Run, provided MPF capacity and regulatory limits are not exceeded. Each Run will consist of up to seven TCs sequentially processed through the MPF at 80-minute intervals (Table C-11, Appendix C).

(3) Each Run will be completed before the next Run is started. The MPF processing times will remain the same, a minimum of 40 minutes in Zone 1 and a minimum of 80 minutes in Zone 2. This schedule is designed to allow sufficient time for any residual chemical agent to burn off and to provide spacing in the sequence of operations. Each TC will be placed under the Discharge Canopy after removal from Zone 2. If the chemical agent alarm is activated while the container is in the Discharge Canopy, the TC will be returned to Zone 2 for further processing.

b. Staging TCs Test.

(1) This test will confirm the capability of the MPF to process multiple TCs.

(2) Each Run will consist of up to seven TCs sequentially processed through the MPF (Table C-4, Appendix C).

(3) Chemical agent charges will start at 58 lbs HD and proceed in 17-lb increments per Run up to the maximum heel determined in previous tests, provided temperatures remain stable and do not exceed the MPF temperature limitations.

(4) After reaching the maximum charge, the final Run will consist of maximum determined charge plus all stack sampling operations to ensure that the MPF will operate in a safe and stable manner.

c. Chemical Agent HD Filling Operation.

(1) Receiving and Staging chemical agent HD TCs.

(a) Receive chemical agent HD TCs at the MPF and weigh IAW SOP OPN 22-07-99-01, *Weighing TCs*, and transport to the MDF/BIF IAW SOP OPN 95-07-07-01, *Processing TCs from BIF & ECC No. 1 UPA*.

(b) Stage chemical agent HD TCs in the MDF/BIF.

(c) Rotate the valved end of the chemical agent HD TC and elevate the aft end of the chemical agent HD TC approximately four inches prior to initiating chemical agent transfer. Record the actual weight of chemical agent HD (indicated on the portable digital scale) on the MPF HD Shakedown Data Sheets provided in Appendix O.

(2) Processing pre-punched TCs containing chemical agent HD.

(a) Record all entries in the CAMDS Site Operating Record for each TC that is processed in the MPF.

(b) Up to seven pre-punched TCs will be used to receive chemical agent HD from the chemical agent HD TC and be processed through the MPF. Each of the these TCs will be individually processed following these steps:

1 Stage pre-punched TCs in the MDF Toxic Unpack Area.

2 Transfer the charge of chemical agent HD required for the Furnace Capacity Test or Staging TCs Test from a pre-weighed chemical-agent-filled TC into the pre-punched TCs IAW SOP OPN 17-27-01-01, *Transferring Chemical Agent From Agent TC to Punched TC(s)*.

d. If a Run is interrupted for any reason, add additional time to the Run to compensate for the downtime.

e. A Test Review Team meeting will be conducted after each Run to evaluate and review the data and discuss possible changes. The team will complete a Test Review Team Checklist upon completion of each Run. The Project Coordinator will schedule a repeat of all Runs determined to be unsuccessful by the Test Review Team. The initiation of any selected Run will depend on successful completion of an earlier test.

3. Data Collection.

a. In addition to the data collected by the Process Data Acquisition System, process data will be collected IAW the methods and frequencies listed on Data Sheets and Forms in Appendix O.

b. Stack Monitoring Contractors will perform stack sampling and analysis. The data sheets collected from the Stack Sampling Contractor will be given to the Test Review Team and Data Collection Representative as they are generated. The Test Review Team will review the data and make recommendations for the next Run. Copies of these data sheets will be furnished to the Utah DSHW representative the day following the Run.

c. Particulate, acid gases, and metals samples will be taken during the Final Sampling Run only. Samples requiring analysis will be collected IAW the QAPP and SSOP (Appendices J and K). Figure L-1 (page L-6) provides the locations of the MPF/PAS sampling and process data acquisition points.

d. The MPF operating parameter data as detailed in Table C-1 (Appendix C) will be graphed by the Data Collection Representative and presented to the Test Review Team the morning after the Run.

e. Manually collected test data and MPF status information will be noted on the Data Collection Sheets and Forms (Appendix O) by the Data Collection Representative.

f. Opacity

(1) Opacity of the MPF stack gas will be performed by a stack reader certified by the State of Utah.

(2) The first Opacity Reading will be taken 15 minutes before each Run. Subsequent readings will be taken every 30 minutes. An Opacity Reading consists of a set of readings taken every 15 seconds for 6 minutes. Readings will be recorded on the Observation Record, AMSSB Form 4001, (Figure O-4, Appendix O).

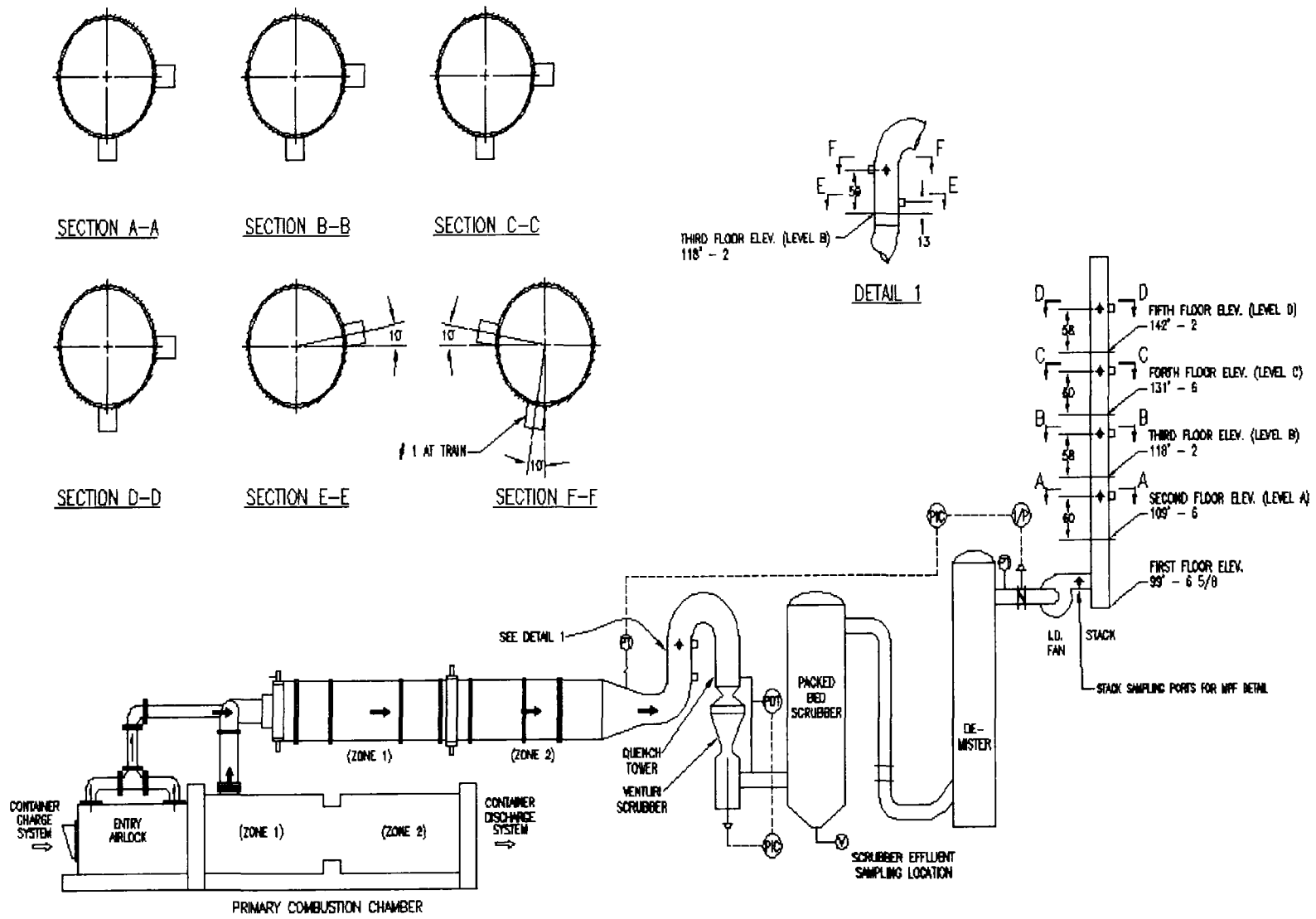

Figure L-1. Metal Parts Furnace Sampling Locations

g. Logbooks.

(1) The date, time, and duration of all AWFCO events, including the triggering parameters, reason for the deviation, and corrective measures taken to avoid recurrence, will be recorded in the MPF operational logbook. Corrective action must be taken prior to restarting the feed system.

(2) All information pertaining to the function of the MPF and the chemical agent transfer will be recorded in the MPF logbook.

(3) The Data Collection Representative will ensure that an entry is made for all information on test events as they occur, i.e., start times, parameters, equipment failures, and interruptions.

4. Personnel Responsibilities. Personnel responsibilities for the Shakedown are the same as those for the Trial Burn, and are provided in Appendix A.